24.1 Theory of Evolution

Biology

Summarize main points from each video.

Video Title / topic _____

Video Title / topic _____

Video Title / topic _____

Topic Introduction

Summarize your understanding of each paragraph.

This topic focuses on the Theory of Evolution. Many associate this topic with Charles Darwin from a voyage in 1831 and his subsequent publication of his observations. Even so, several others began contemplating the subject over 100 years earlier.

Examples of theories that preceded Darwin include catastrophism, gradualism, uniformitarianism, and others. Each of these ideas helped shape Darwin's eventual hypothesis regarding variations in species, adaptation, heritability, and concepts of natural selection.

Darwin's line of thinking – initially as a hypothesis – has withstood the test of time with peer-reviewed/peer-observation and other tests and validation. The expression Theory implies a significant level of testing and rigor has been validated by many scientists.

Aside from direct/visual observations of living things, there is an abundance of other evidence from fossils (paleontology), DNA sequence analysis, embryological evidence, molecular evidence, and protein comparisons across cell-types.

Read/Summarize Text

1. **Read the passage.**
2. **Underline key expressions in each sentence.**
3. **Re-write each word (or expression) you underlined.**
4. **Summarize the passage.**

Evolution unites all fields of biology.

1

2

Scientists are still actively studying evolution through natural selections. The theory of natural selection combined with genetics is sometimes called the modern synthesis of evolutionary theory. The 21st century is an exciting time to study evolutionary biology.

The basic principles of evolution are used in fields such as medicine, geology, geography, chemistry, and ecology.

As much as we know about life on Earth, there is so much more waiting to be discovered.

Excerpts from Biology, Holt/McDougal, page 301.

Re-write words you underlined

3

_____ _____ _____

_____ _____ _____

Using a complete sentence, summarize or rephrase the passage

4

Read Text for Comprehension

Read this article for deeper understanding. No summary is required, although you may want to circle, underline, or mark key ideas and words.

Charles Robert Darwin was an English naturalist, geologist and biologist. He is best known for his contributions to the science of evolution.

He established that all species of life have descended over time from common ancestors and, in a joint publication with Alfred Russel Wallace, introduced his scientific theory that this branching pattern of evolution resulted from a process that he called natural selection, in which the struggle for existence has a similar effect to the artificial selection involved in selective breeding.

Darwin published his theory of evolution with compelling evidence in his 1859 book On the Origin of Species, overcoming scientific rejection of earlier concepts of transmutation of species. By the 1870s, the scientific community and much of the general public had accepted evolution as a fact.

Darwin's early interest in nature led him to neglect his medical education at the University of Edinburgh; instead, he helped to investigate marine invertebrates. Studies at the University of Cambridge (Christ's College) encouraged his passion for natural science. His five-year voyage on HMS Beagle established him as an eminent geologist whose observations and theories supported Charles Lyell's uniformitarian ideas, and publication of his journal of the voyage made him famous as a popular author.

Puzzled by the geographical distribution of wildlife and fossils he collected on the voyage, Darwin began detailed investigations and in 1838 conceived his theory of natural selection. Although he discussed his ideas with several naturalists, he needed time for extensive research and his geological work had priority. He was writing up his theory in 1858 when Alfred Russel Wallace sent him an essay that described the same idea, prompting immediate joint publication of both of their theories.

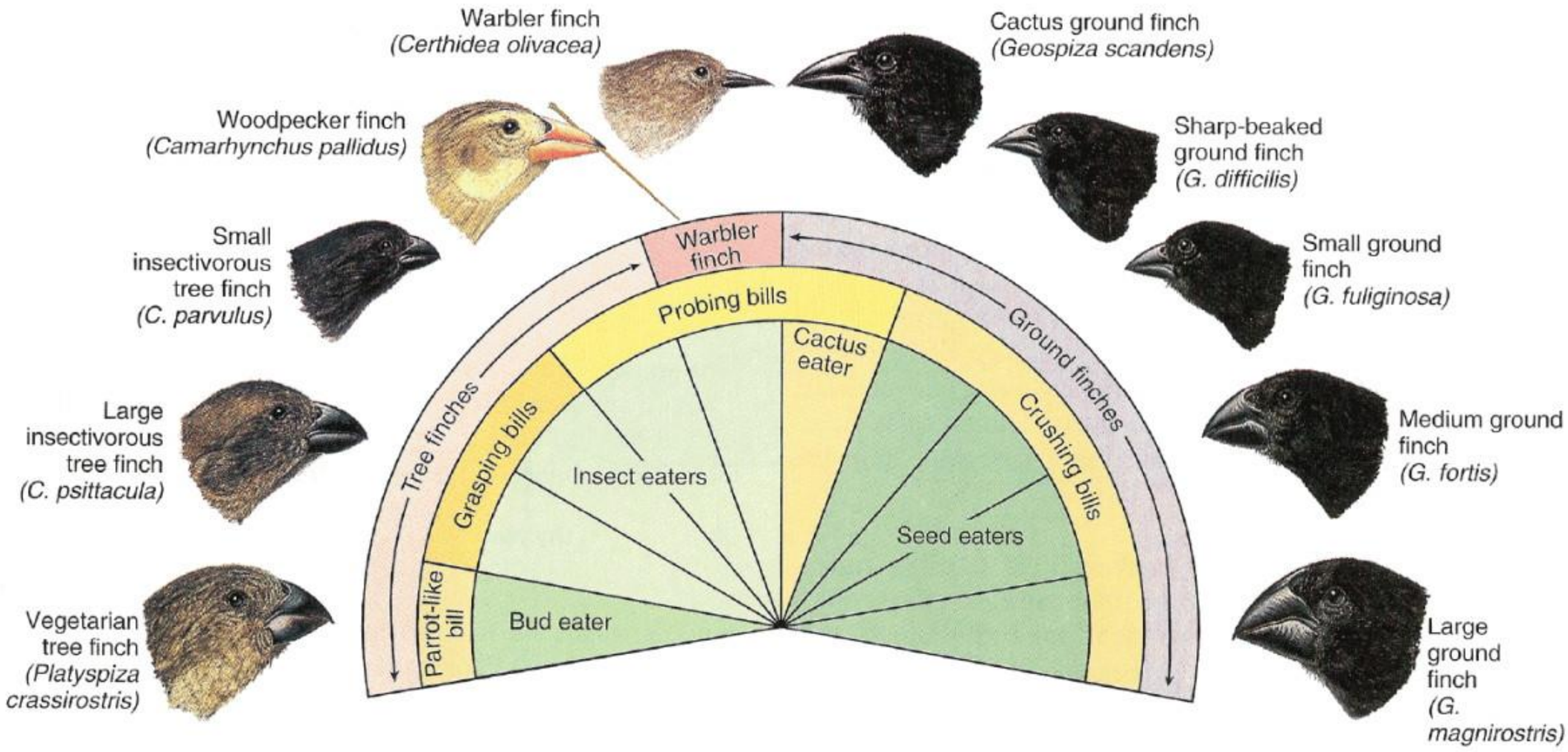
Darwin's work established evolutionary descent with modification as the dominant scientific explanation of diversification in nature. In 1871 he examined human evolution and sexual selection in The Descent of Man, and Selection in Relation to Sex, followed by The Expression of the Emotions in Man and Animals (1872). His research on plants was published in a series of books, and in his final book, The Formation of Vegetable Mould, through the Actions of Worms (1881), he examined earthworms and their effect on soil.

Darwin has been described as one of the most influential figures in human history, and he was honored by burial in Westminster Abbey.

https://en.wikipedia.org/wiki/Charles_Darwin

Draw Illustration

Copy and Label the Illustration in the Space Provided



http://www.basfeijen.nl/evolution/pic/finchesbeaktypes.jpg

Interpret an Illustrative Graphic

Describe / interpret the graphic illustration shown below:

_____

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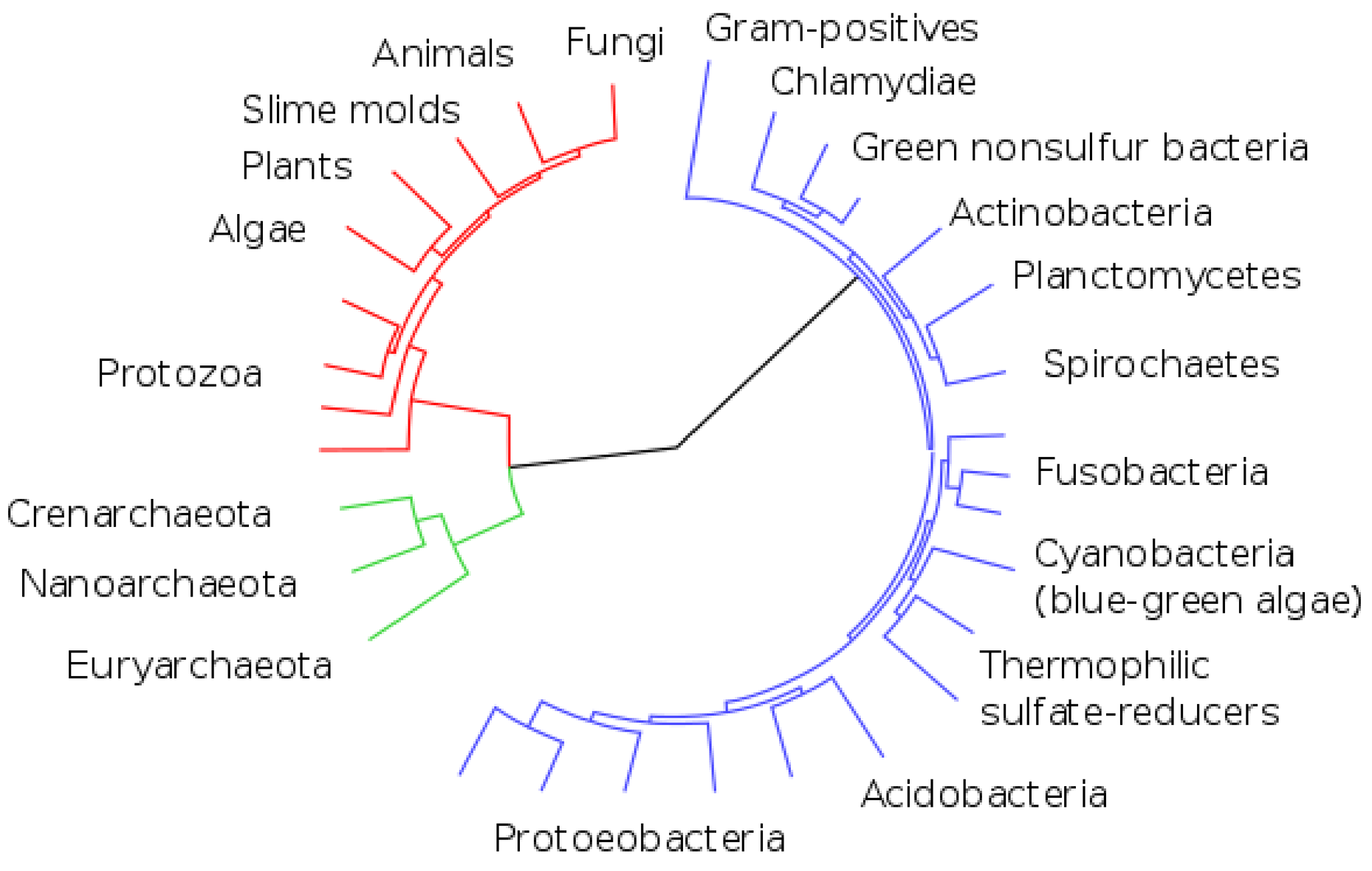
By Original uploader was User:TimVickers, SVG conversion by User:User_A1 - Own work (Original text: Self made.), Public Domain, https://commons.wikimedia.org/w/index.php?curid=9381199



Show-Off Your Smarts!

Instructions

- Complete as an individual or small group.
- Discuss your ideas/answers/responses in a small group.
- Select one person to present your responses to the class.

Q1. How can this information be applied to a young-person's life?

Q2. How does this information apply to (or impact) communities?

Q3. When do scientists need to apply this information? How?

Q4. How would a person from 100 years ago view this information?

Q5. How does this topic connect to other science topics or math?

Write down at least three words introduced or covered by this topic.

1.
2.
3.
4.
5.
6.

Make a Poster

In the space provided here, create/draw a poster which conveys the concepts you have learned on this topic.